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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,448	06/10/2005	Thomas Netsch	PHIDE020303US	3792
38107 7590 02/18/2010 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P. O. Box 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER MEHTA, PARIKHA SOLANKI				
ART UNIT		PAPER NUMBER		
3737				
MAIL DATE		DELIVERY MODE		
02/18/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,448

Applicant(s)

NETSCH ET AL.

Examiner

PARIKHA S. MEHTA

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-4 and 15 are rejected under 35 USC 101 as being directed to non-statutory subject matter because these are method or process claims that do not transform underlying subject matter (such as an article or materials) to a different state or thing, nor are they tied to another statutory class (such as a particular machine). See *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (quoting *Benson*, 409 U.S. at 70); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978) (citing *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)). See also *In re Comiskey*, 499 F.3d 1365, 1376 (Fed. Cir. 2007) (request for rehearing *en banc* pending).

3. Claims 5 and 7 are rejected under 35 USC 101 as being directed to non-statutory subject matter. The USPTO is obliged to give claims their broadest reasonable interpretation consistent with the specification during proceedings before the USPTO (*In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989)). The broadest reasonable interpretation of a claim drawn to a computer readable medium covers forms of non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of "computer readable media", particularly when the specification is silent (MPEP § 2111.01). When the broadest reasonable interpretation of a claim covers a signal *per se*, the claim is rejected under 35 U.S.C. § 101 as covering non-statutory subject matter (*In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007); *Interim Examination Instructions for Evaluating Subject Matter Eligibility Under 35 U.S.C. 101*, Aug 24, 2009 p. 2). As the present claims do not specify whether the CRM is, the claims include within their scope subject matter which is not eligible for patent under 35 U.S.C. § 101.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-4 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1-5 recite the first and second current and earlier reference slice images as being differently oriented by a preset angular offset. The pending specification neither discloses an offset nor describes any other feature which reasonably corresponds to a preset offset. Accordingly, a skilled artisan would not be reasonably apprised of how to make and use the offset, and would thus not be enabled to make and use the invention.

Claim Objections

6. Claims 1-4 and 15 objected to because of the following informalities:
In line 23 of claim 1, “diagnostic” should be replaced with –diagnostic--.
Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 4-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art.

Regarding claims 1 and 5, Applicant admits that computerized methods are known in the art for making current reference slice images, determining a geometrical transformation by which the current reference slice images are brought into agreement with earlier reference slice images, calculating current imaging parameters by transforming earlier image parameters, and making a current diagnostic slice image via the current imaging parameters, wherein "brought into agreement" is interpreted to constitute making the relative positions and orientations of both reference image types agree in three dimensions (Specification as originally filed, p. 1 line 27 - p. 2 line 11). The admitted prior art does not teach that the reference slice images are differently oriented by a preset angular offset. As applicant has not disclosed that such preset angular offset solves a particular problem or presents a patentable advantage over the prior art, it would have been nothing more than an obvious matter of design choice for a skilled artisan to have chosen reference images having a preset angular offset to achieve the claimed invention.

Regarding claims 6, 8-10 and 12, Applicant admits that the prior art teaches systems comprising image-making means, a computer that operates the image-making means, the computer being programmed to receive earlier reference slice images, make current reference images, calculate a geometric transform that transforms the earlier and current reference slice images into alignment with each other, operating on the earlier imaging parameters to generate current imaging parameters, and controlling the image-making means to generate a diagnostic slice image using the current image parameters (Specification as originally filed, p. 1 line 27 - p. 2 line 11). Although the admitted prior art is silent with respect to the relative orientation of the images, it would have been an obvious matter of design choice for a skilled artisan to have chosen non-parallel reference images. Applicant also admits that the systems of the prior art generate earlier and current reference images having a resolution that is different along each of the two orthogonal directions (Specification as originally filed p. 2 lines 15-17).

Regarding claims 7 and 11, the admitted prior art does not expressly teach the system as being programmed to calculate the geometric transform as a rigid or affine transformation defined by a set of transformation parameters determined automatically by a suitable algorithm which optimizes a measure that represents a similarity of the current reference slice images to the earlier reference slice images. The admitted prior art does separately teach rigid and affine transformations (see for example p. 8 of the Maintz reference, cited at p. 2 of the Specification). Applicant further admits that algorithms for computing transformation parameters by optimization of similarity are known in the art (Specification p. 4 lines 16-21). It would have been obvious to one of ordinary skill in the art at the time of invention to

have combined the admitted prior art system of claims 6 and 10 with the admitted known elements for rigid and affine transformation, as well as the admitted known optimization algorithms to thereby yield the claimed invention, as such a modification requires nothing more than the mere combination of known prior art elements to yield predictable results, which has previously been held as obvious and unpatentable (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385).

Regarding claims 4 and 13, any slice image of the human body, as disclosed in the admitted prior art, inherently has a specific orientation relative to (i.e., "in") a head-foot direction, an anterior-posterior direction, and a right-left direction. As such, the admitted prior art meets the claim.

Regarding claim 15, Applicant has not disclosed that orthogonal reference slices solve a particular problem or present a patentable advantage over the prior art. As such, it would have been an obvious matter of design choice for a skilled artisan to have chosen reference slices which are orthogonal to yield the claimed invention.

10. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art as applied to claim 1, further in view of Grimson (US Patent No. 5,531,520), hereinafter Grimson ('520), of record.

The admitted prior art does not teach identification of reference points. In the same field of endeavor, Grimson ('520) teaches the geometrical transformation as including identification of reference points in the current slice images that agree with reference points in the earlier slice images (col. 6 lines 41-54). Grimson ('520) further teaches the geometrical transformation to be a rigid transformation defined by a set of transformation parameters calculated by an optimization algorithm (Fig. 2, col. 6 lines 17-41). It would have been obvious to a skilled artisan to have used the geometrical transformation of Grimson ('520) as the generalized transformation admitted to be known in the art, as such a modification requires nothing more than the mere combination of known prior art steps to yield predictable results, which has previously been held as obvious and unpatentable (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385).

Response to Amendments Arguments

11. Applicant's amendments are sufficient to overcome the previous objections to the oath, specification and claims, as well as the previous rejection under 35 U.S.C. 112, which are hereby vacated accordingly.

12. Applicant's arguments with respect to the prior rejection of claims 1-13 and 15 have been considered but are moot in view of the new ground(s) of rejection presented herein. Merely deleting matter from the specification does not remove it from the record as admitted prior art, and as such the specification as originally filed remains a proper basis upon which the prior art rejection is formed herein.

13. As the new grounds of rejections under 35 U.S.C. 101 presented herein were prompted by recent case law, not by Applicant's claim amendments, the present action is not final.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARIKHA S. MEHTA whose telephone number is (571)272-3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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